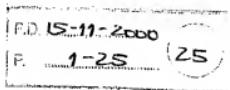


XP-002288533



# Feldbus, Ethernet, Internet, TCP/IP



Alles klar ?

Gummersbacher Industrieforum  
15.11.2000

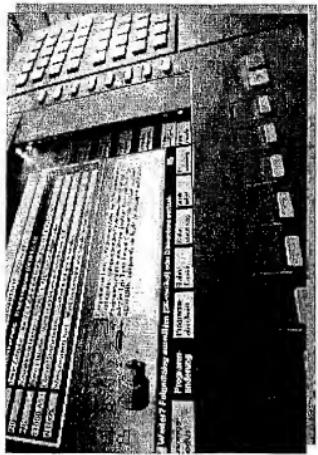
Prof. Dr. Frithjof Klasen



## Prof. Dr. Frithjof Klasen

### Fertigungsautomatisierung

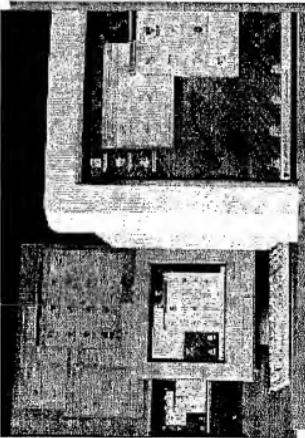
- Automatisierungssysteme:  
SPS, Industrie-PC, CNC



- Feldbusssysteme:  
PROFIBUS, INTERBUS,  
CAN, AS-i, Ethernet

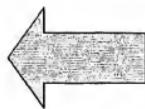
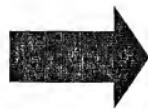
### Informations- und Kommunikationssysteme

- Netzwerk- und  
Systemintegration
- Teleconferencing:  
Fermdiagnose, Fernwartung  
(ISDN, Internet)



Zwei Welten wachsen aufeinander zu

Information Technology



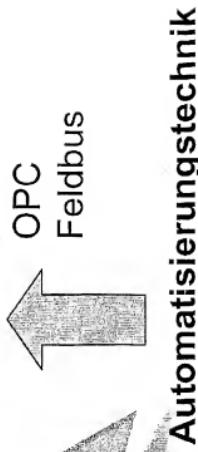
Automatisierungstechnik

## Zwei Welten wachsen aufeinander zu

### Information Technology

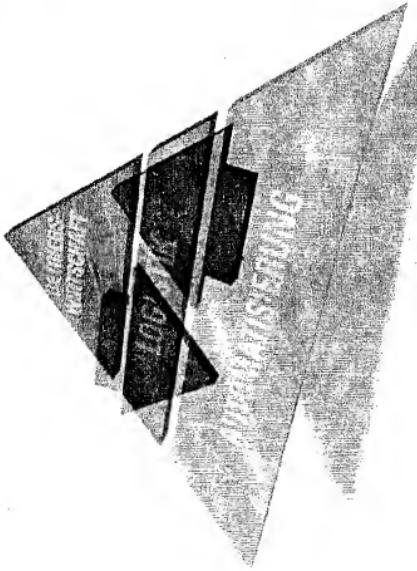


Webtechnologie  
Ethernet



OPC  
Feldbus

### Automatisierungstechnik



## **Die Fragen**

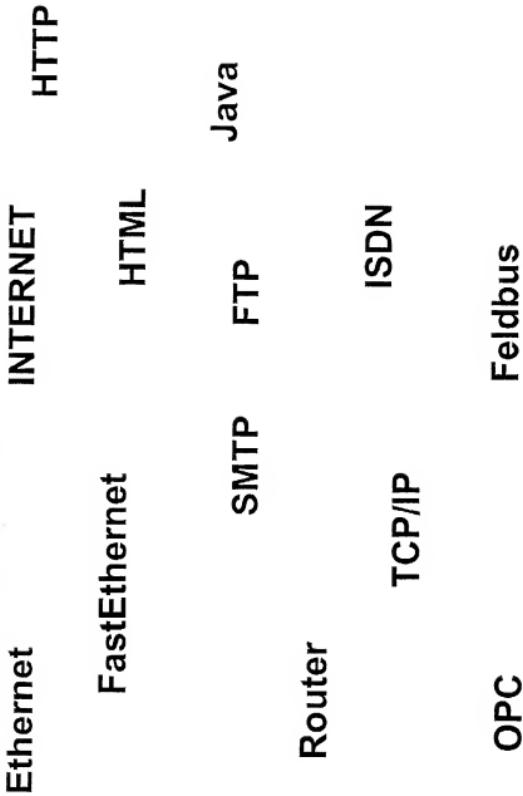
**Mit Ethernet bis zum Sensor ?**

**Vom Feldbus zum Ethernet ??**

**Interbus vs. Ethernet ?**

**Profibus vs. Ethernet ?**

## Die Schlagworte



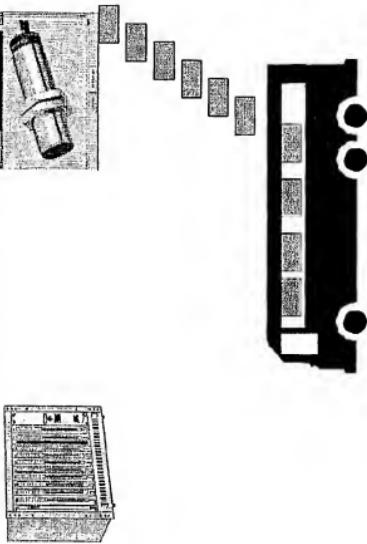
# TCP/IP Protokoll

Netzwerkprotokoll zum 'Austausch von Daten'  
über Netzwerkgrenzen hinweg (inter-net)

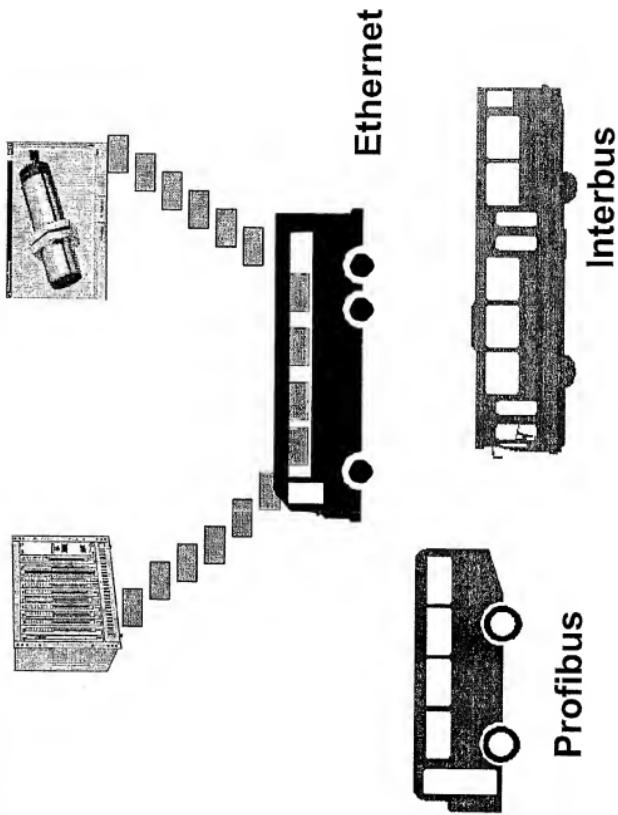
TCP: Transmission Control Protocol  
(zum sicheren Transport der Daten)

IP: Internet Protocol  
(zum Senden von Daten über  
Netzwerkgrenzen hinweg)

# Prinzip der paketorientierten Kommunikation

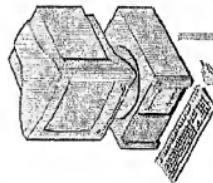


# Prinzip der paketorientierten Kommunikation

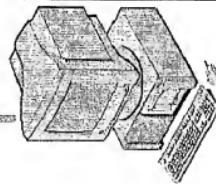


# Ethernet TCP/IP in der Bürowelt

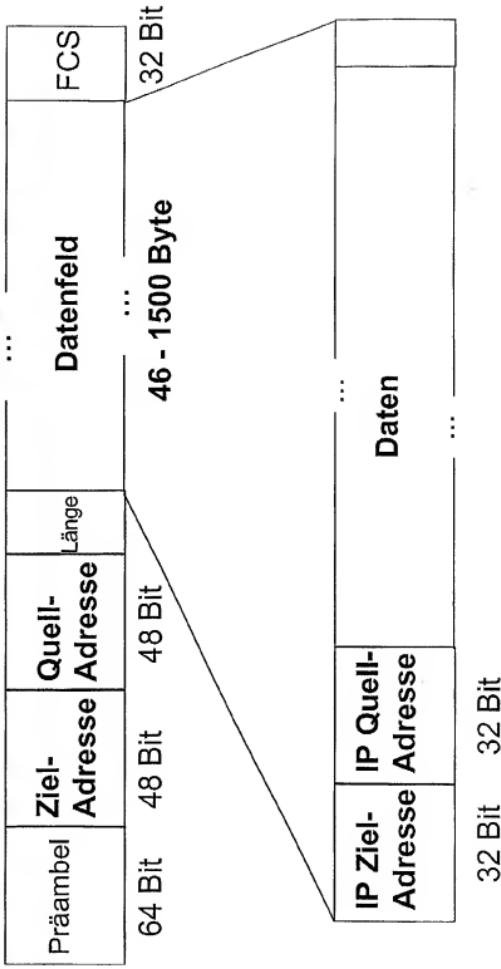
## TCP/IP über Ethernet



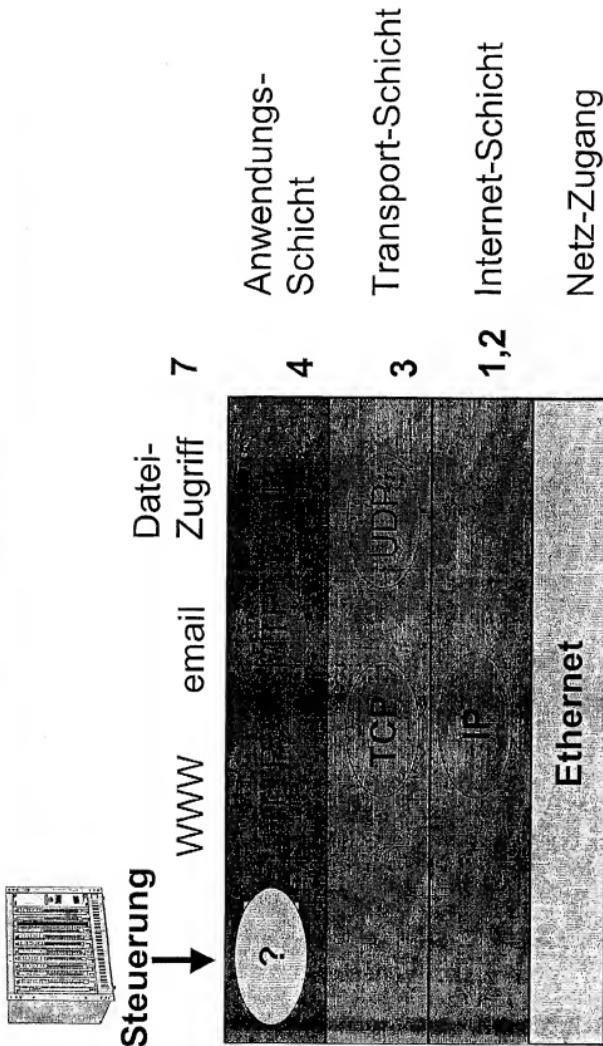
Statische IP-Adresse für die Netzwerkkommunikation zuweisen



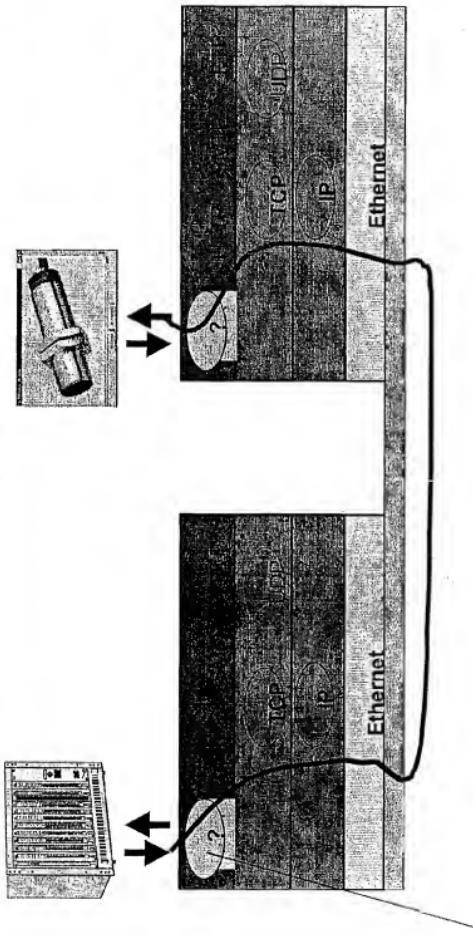
## IP-Adresse im Ethernet Frameformat



# Das Schichtenmodell / Beispiel Ethernet

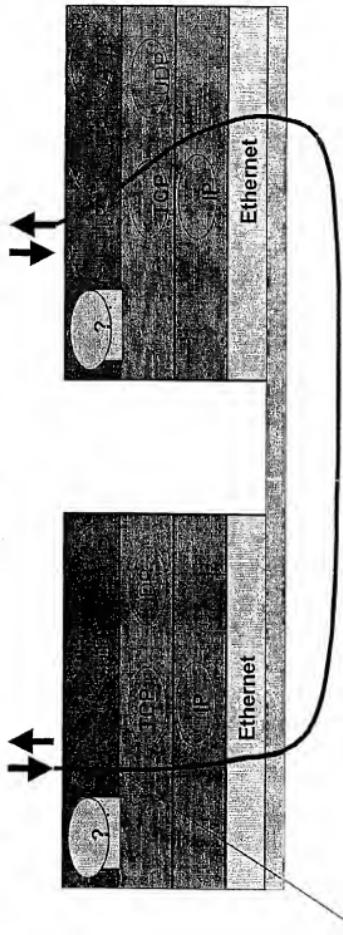


## Mit Ethernet bis zum Sensor



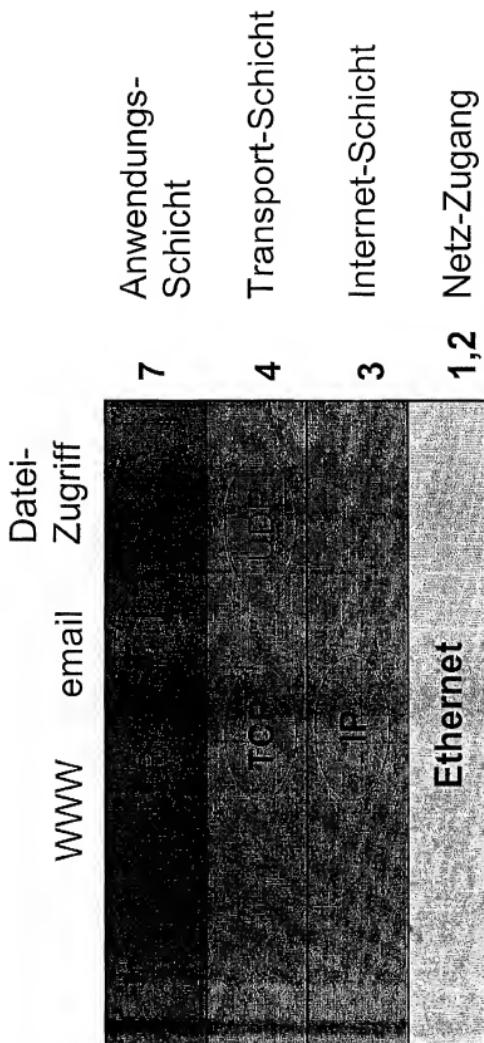
proprietäres Applikationsprotokoll

## Sensor-Anbindung über Web-Server

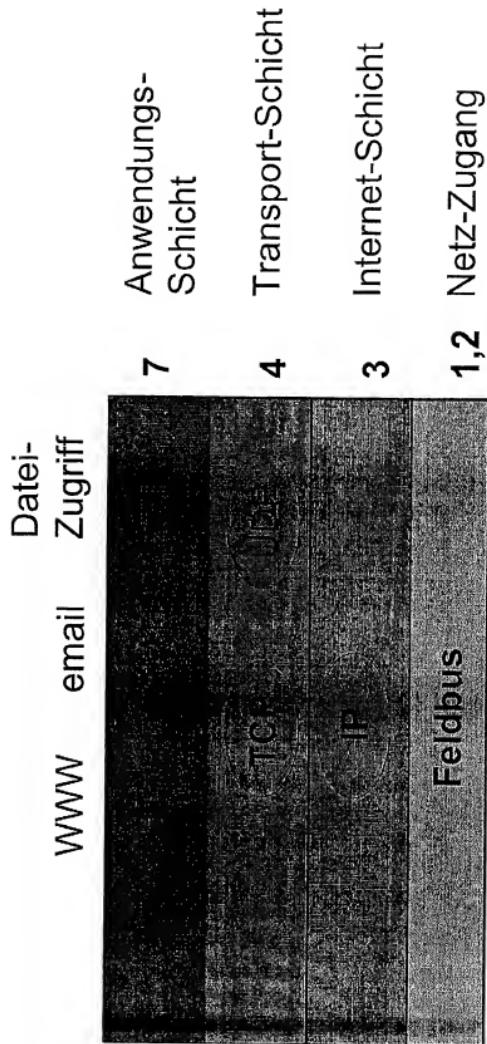


**standardisiertes Applikationsprotokoll**

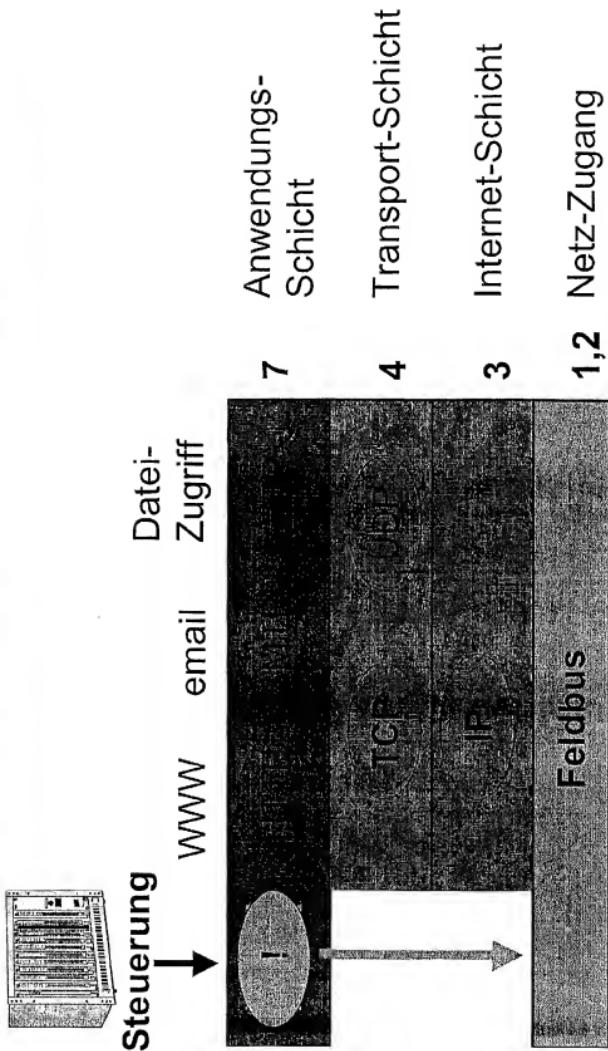
# Das Schichtenmodell / Ethernet



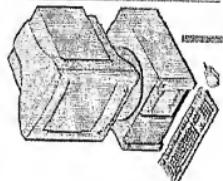
## Das Schichtenmodell / Beispiel Feldbus



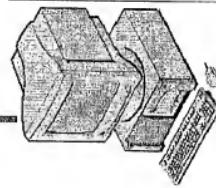
## Das Schichtenmodell / Beispiel Feldbus



## TCP/IP nutzt Feldbus-Infrastruktur

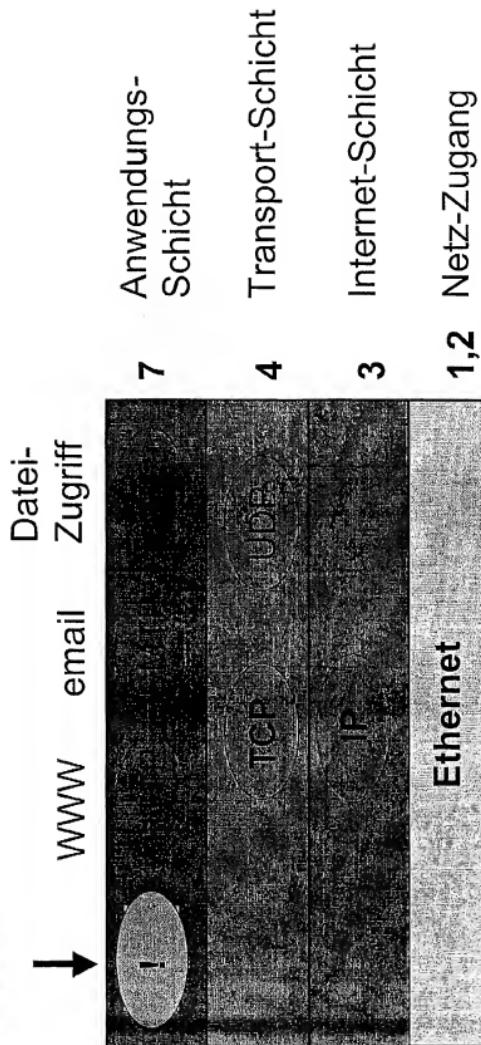
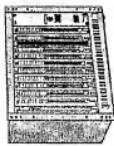


## TCP/IP über Feldbus

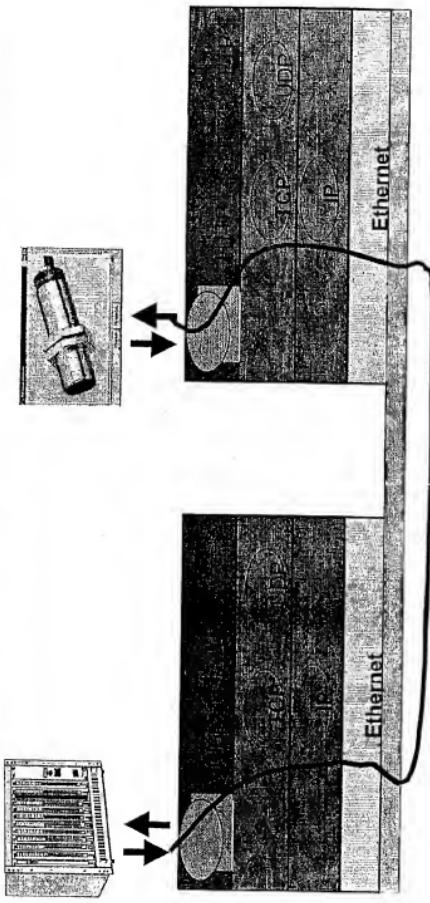


# Das Schichtenmodell / Feldbus-Applikation mit Ethernet

## Steuerung



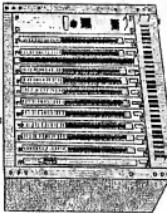
## Mit Feldbus-Gateway über Ethernet



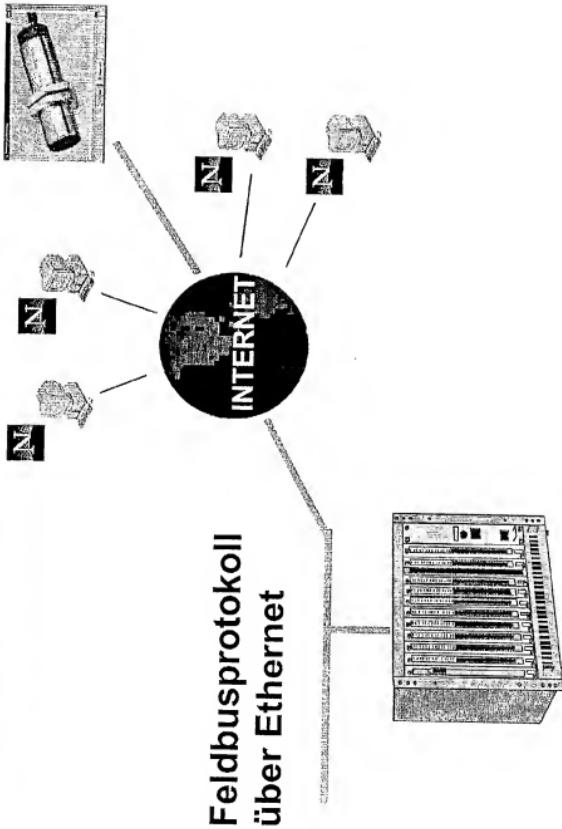
# Mit Feldbus-Gateway über Ethernet



## Feldbusprotokoll über Ethernet



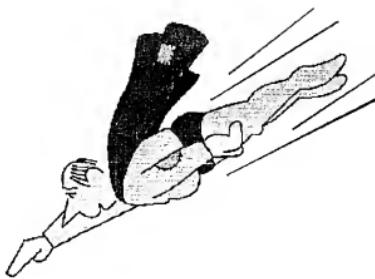
## Mit Feldbus-Gateway über Internet



## Die Alternativen

- 1) 'reines' Feldbusssystem
- 2) 'reines' Ethernet TCP/IP  
(TCP/IP über Ethernet)
- 3) TCP/IP über Feldbus
- 4) Feldbusprotokoll über Ethernet

Die Lösungen ;-)



# Kontakt



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